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DEC 7 1914

FORD MOTOR COMPANY

installs

*“Sirocco”*

TRADE MARK

Heating,  
Ventilating and Cooling  
System

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*Ford—the greatest manufacturer of motor cars in the world—has repeatedly installed larger and larger systems of heating, cooling and ventilating through the "Sirocco" plan with its many blade fan. Just now, there has been finished, at Ford's Detroit plant, a complete "Sirocco" system which is the largest of its kind ever installed.*

## "Sirocco" at the Ford Plant

**S**IROCCO" is installed at both the main American and the branch Canadian plants of the Ford Motor Co.

This means a great deal.

When you think of heating, cooling, ventilating and otherwise properly conditioning the air in the plants of the Ford Motor Company, one must think in superlatives.

It is well known that the Ford plant at Detroit is the largest motor car factory in the world. But consider it in another way. To purify and "healthify" the air in the new six story addition to the Ford American plant means to cool or warm—as the case

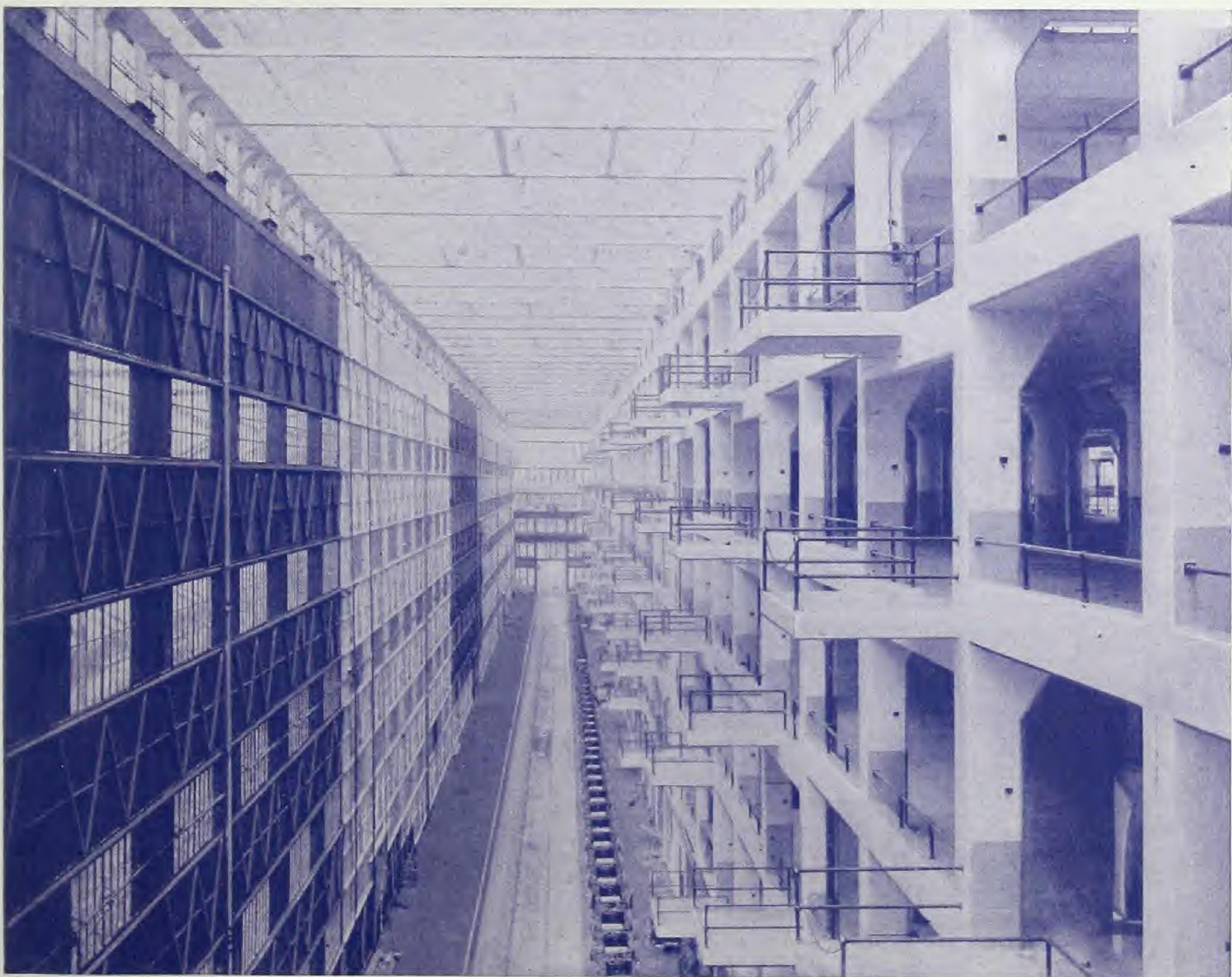


Figure 1—One of the Ford heating, cooling and ventilating problems. View of "Light Well" showing one outside wall and one "open wall" six stories high. A comparative idea of size can be had from the railroad tracks and line of Ford chassis in the "Well."

## "SIROCCO" DISTRIBUTES AIR PERFECTLY

may be—all the air in buildings capable of storing the entire yearly output of 11 ordinary sized motor car companies. Think what this means. Absolutely pure healthful and properly conditioned air for all the thousands of men working in the space that would store a straight line of cars stretching from Chicago to Milwaukee.

Mr. Ford has acknowledged that one of the most important factors in his success has been due to the detail with which he has looked after the health and comfort of his employees. This has meant maximum human efficiency.

Without this maximum human efficiency all of that wonderful machinery would never have turned out a Ford car a minute—yes, and a Ford car every 45 seconds—nearly 1500 automobiles in twenty-four hours.



Figure 2—Another illustration of this enormous heating, cooling and ventilating problem at Ford's Detroit Plant. A "Light Well" and two "open" or inside walls. Note the diminutive appearance of the string of huge automobile freight cars.

## 100 Percent Floor Space and 100 Percent Efficiency

In all this business of giving 15,000 employees comfortable and absolutely healthy working conditions—of getting one hundred percent human efficiency, one hundred percent of the time—of making an enormous factory habitable twenty-four hours of every day—and building 1500 automobiles in twenty-four hours—one system has been chosen more than once for heating and ventilating—and that system is "Sirocco."

Think of what an accomplishment it is to properly condition these buildings with their literally miles of floor space—with millions and millions of cubic feet of air—and hundreds of



Figure 3—100 percent available floor space. View showing general details of columns, illustrating air outlets. The columns are hollow and were formed perfectly by filling the permanent sheet metal ducts with fine dry sand until the concrete hardened.

## "SIROCCO" COOLS ALL AIR PERFECTLY

thousands of square feet of glass area. Sixty-five percent of the wall surface of this immense plant is glass, yet in the coldest of weather the "Sirocco" plan with its many blade fan is guaranteed to keep the entire place 70 degrees comfortable.

Imagine a cool breezy plateau directly above a hot sweltering valley. "Sirocco" has figuratively made the Ford plant that plateau. In the hottest weather it is, on an average, about 20 degrees cooler in the "Sirocco" cooled Ford plants than it is outside.

In the hottest of weather the air leaves the ventilating apparatus at 78 degrees cool. And there is very little change from the time it leaves the apparatus until it arrives on the ground of action.



*Figure 4—Pent houses—the real source of Sirocco "healthified" air. The pent houses contain the "Sirocco" Purifier, heaters and the "Sirocco" Fan of the many blade plan. Note the large main ducts or air channels.*

## The Latest Ford "Sirocco" Installation--American Plant

In the summer of 1913 plans were drawn and contracts placed for the erection and equipment of a six story addition to the immense Ford plant at Detroit. The "Sirocco" plan with its many blade fan was chosen as most efficient for heating, cooling and ventilating.

This "Sirocco" installation is the largest of its kind ever made. It is unique in that the only other places where air distribution is handled in a similar manner are at the Ford Canadian plant and a huge machine shop in Baltimore, for which the American Blower Company is now building the heating and air conditioning equipment. This latter contract was placed after an inspection of the Ford plants.



Figure 5—Main and branch or secondary ducts which distribute the conditioned air from the pent houses themselves to hollow columns from whence it is forced directly into the entire enormous plant.

This building (Figures 1 and 2) is six stories high—contains 11,200,000 cubic feet of space and 939,000 square feet of floor area. The construction is of steel and concrete with steel window sash.

Sixty-five percent of the wall surface is glass. The roof is constructed of concrete covered with cinders and tar with gravel on top of this. The vast area of sky lights are constructed in the same manner as the side windows of the building.

The heating and air conditioning apparatus consists of eight separate units, each one comprised as follows:

A No. 12 Sirocco Fan.

56,000 cubic feet (per minute) "Sirocco" Purifier.

9 sections deep of 72 inch Vento, two stacks high.

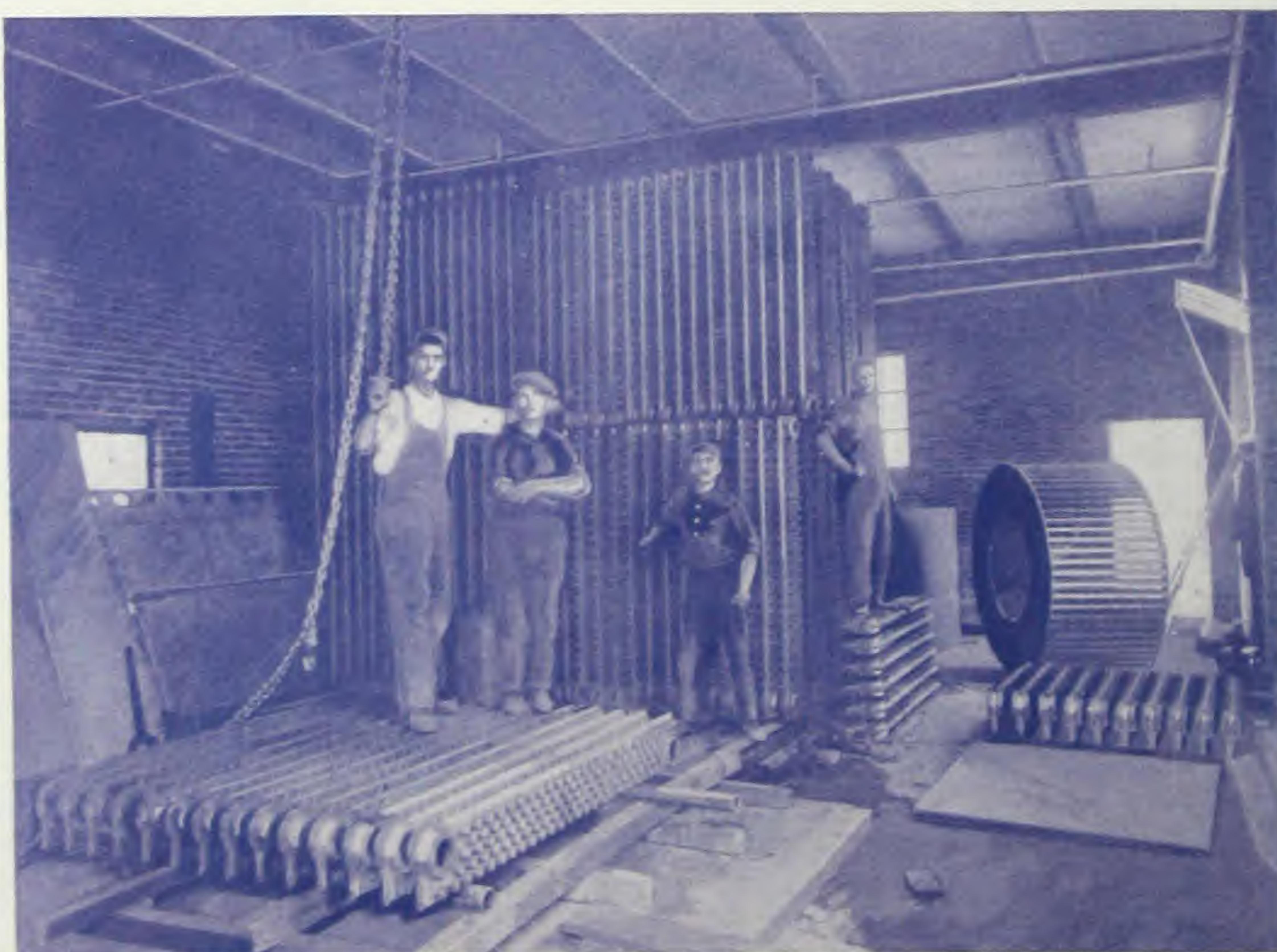


Figure 8—One of the huge heaters being erected in sections. Each one of these heaters is 9 sections deep of 72 inch Vento, two stacks high, as shown.

Each unit of apparatus is placed in its separate pent house on the roof of the building. Thus the very sources of the "Sirocco" air conditioning systems are distributed most advantageously.

The conditioned air from the fan discharges through a large duct which leads onto the roof. Here it divides into two smaller ducts going in opposite directions. From these ducts it is forced into branches which connect with each series of columns supporting the different floors.

One of the unique yet important features of this entire Ford "Sirocco" plan is that the heating, cooling and ventilating system takes up practically no floor space, nor does it interfere

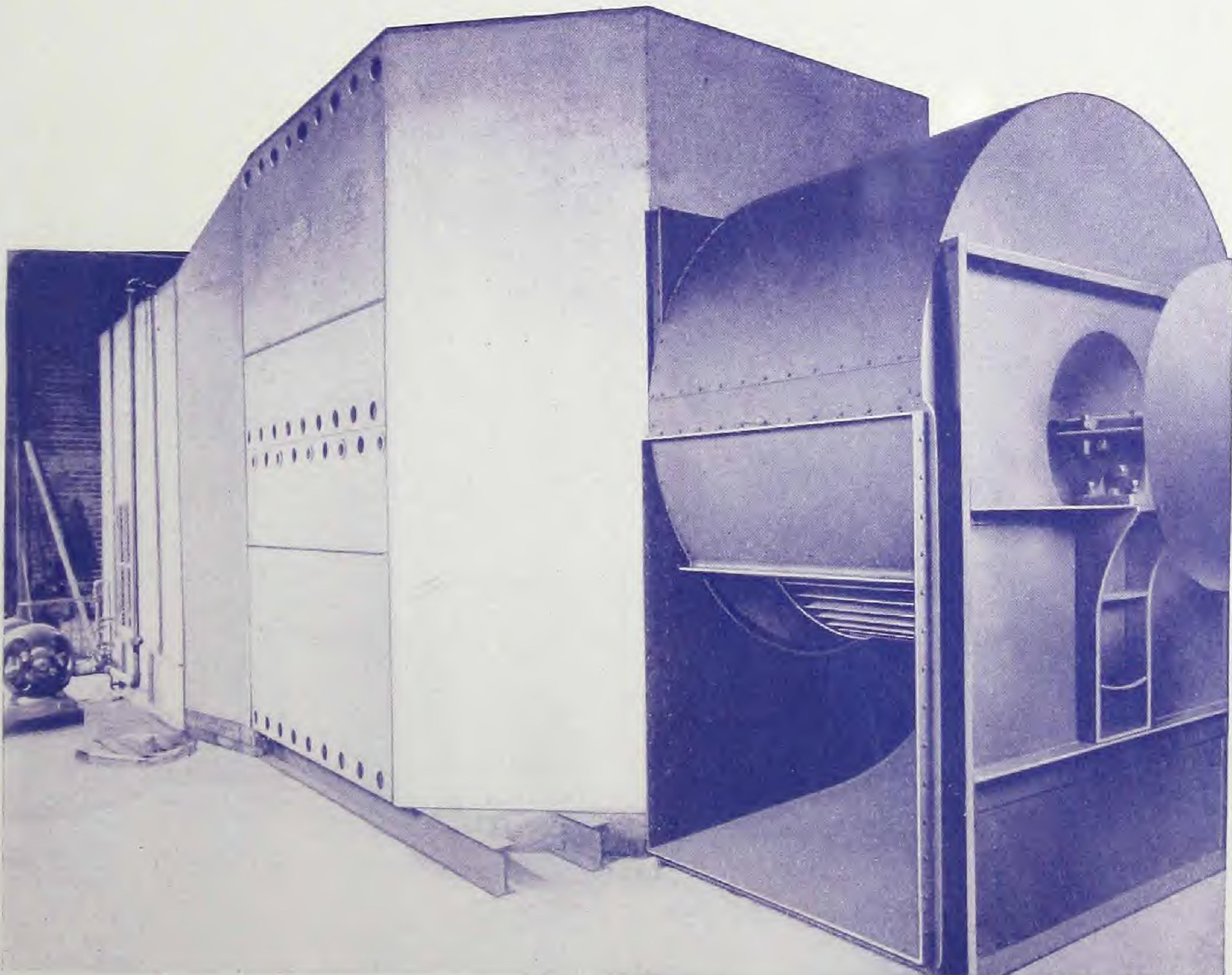


Figure 7—One complete unit—comprising the Purifier (extreme left), Heater (immediately in front of Purifier) and the Sirocco Fan of the many blade plan (at extreme right). Each one of these units weighs over 50 tons—another good idea of the enormity of this "Sirocco" installation.

with the light or the power transmission equipment. Every bit of space is available for manufacturing or storage purposes.

The columns, which house or conceal the flues or ducts for getting the air where it is actually needed, are hollow. They were formed by placing a permanent light gauge sheet steel duct properly centered and braced with wood forms fitted around the outside. This duct was filled with fine dry sand to prevent its collapse due to the pressure of the liquid concrete mixture on the outside. The air outlets on each floor were provided for in the making up of the wood forms for the columns—as illustrated by Figure 3.

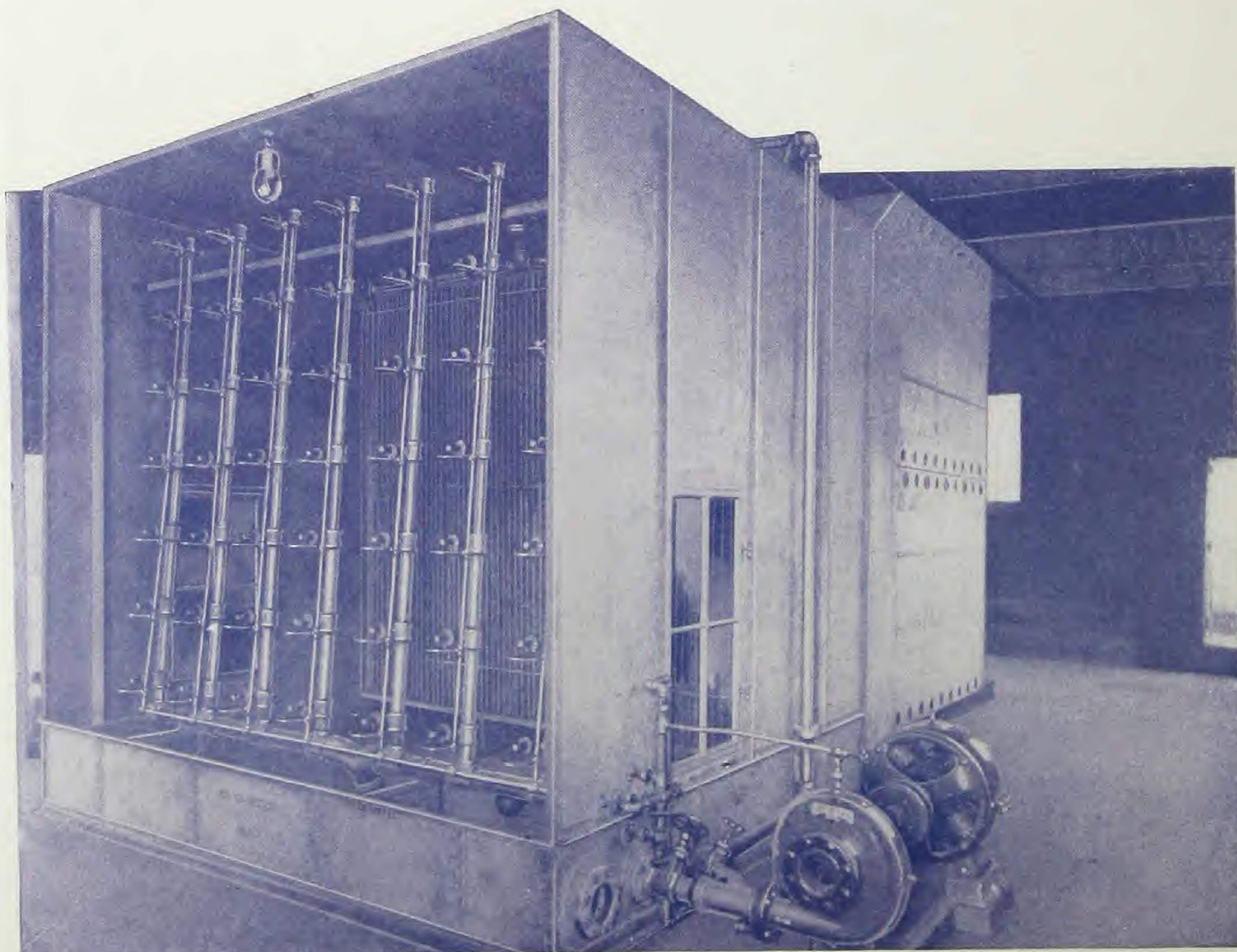


Figure 8—"Healthifying" Ford air. Showing one of the eight great air washing devices. Here all dirt is washed out—and the air is passed on to be properly heated, or cooled, as the case may be.

As the concrete columns were poured, openings were made at the ground floor line. When the concrete had hardened the sand was removed through these openings, thus leaving a smooth air duct of the proper size within the columns. The air is thus distributed through the supply ducts and columns to the various floors.

Each outlet in the column is provided with a diffuser and damper to give good distribution from the outlets and to allow for adjustment of the volume of air on each floor.

The heat is obtained from hot water pumped from the power house and circulated through the heating coils in the pent houses. Thus when the pipes are cold the "Sirocco" many blade fans cool the Ford employees and when the pipes are hot the "Sirocco" fans warm the Ford employees.

Fresh air comes into the pent houses through stacks with openings under hood shaped overings (Figure 4.) Adjustable



Figure 9—View of the Ford Canadian Plant at Ford, Ontario.

dampers regulate the supply, which can be cut off entirely and the air within the building recirculated after being again washed and warmed or cooled.

The power for all machines in the Ford plant is entirely developed by large gas engines and the cooling water used in the jackets around the cylinders of these engines, as well as the air compressor jacket water, is utilized for heating purposes. It enters the coils at a temperature of about 150 degrees, and circulating through them raises the temperature of the air forced in contact with them, to about 120 degrees. When necessary, it is possible to circulate this water at a higher or lower temperature. This means a corresponding higher or lower temperature of air distributed through the building. The fans themselves are operated by electric motors.

In order to give a still more vivid illustration of the immense size and capacity of this Ford "Sirocco" installation, consider this: If all the apparatus could be placed on one scale it would be found to weigh over 400 tons. Think of it—almost a million pounds.



Figure 10—Pent houses on roof of Ford Canadian Plant. This illustration helps show adaptability of this Sirocco plan, with its many blade fan, to the small as well as large plants.

## The Ford Canadian Installation

While the "Sirocco" system for the Ford American is the largest one of its kind ever installed and is brand new, it isn't untried and isn't adaptable only to enormously large buildings. Virtually a sister to this American equipment has been in operation in the Ford Canadian plant at Ford, Ontario, for over two years. In this work it proved its merit to the extent of causing Ford engineers to choose "Sirocco" again as described heretofore. It also proved that it is as applicable to smaller plants as it is to the larger ones.

In the fall of 1912 the Ford Canadian plant was extended by the erection of a four story building. The "Sirocco" system of heating, ventilating and cooling designed by the Canadian "Sirocco" Company (associates of the American Blower Company) embodying practically the same method of air distribution as now employed at the Ford American plant in Detroit was installed.

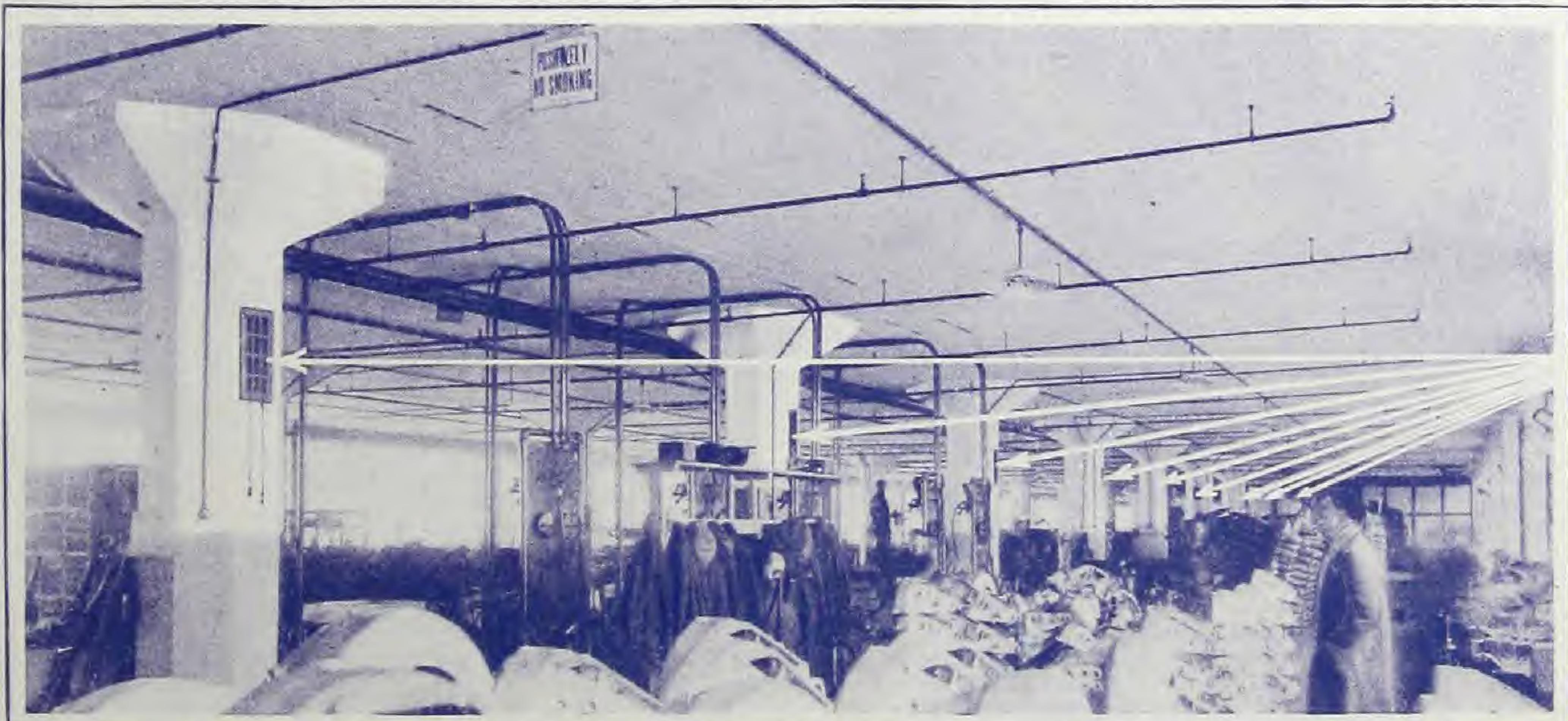


Figure 11—The air outlets. 100 percent floor space available and being used.

## A Severe Test

As will be noted from Figure 9 reinforced concrete construction is used throughout, with exposures largely glass surface. As the building stands right over the Detroit River, near Lake St. Clair, the wind conditions are extremely unfavorable for successful heating.

The building—four stories in height—contains 1,890,000 cubic feet of space and has a floor area of 151,500 square feet.

The Heating and Ventilating Apparatus consists of two separate units, each having a "Sirocco" Fan capable of handling 56,000 cubic feet of air per minute, combined with the necessary heating surface. The Fans are operated by electric motors.

The duct system on the roof (Figure 10) is made of concrete with 4-inch air space in each side slab and covered over with cinders and tar and gravel, making a duct which is almost non-conducting. These ducts are made of such size as to give a gradual reduction of air velocity throughout the length of the ducts, thus insuring an equal distribution of the air to all the columns.

The concrete supporting columns (Figure 11) are formed in precisely the same manner as those of the American plant at Detroit.

From the above description you will appreciate the immensity of the task of successfully heating, cooling and ventilating this immense Ford plant at Detroit. You will also appreciate the value of this system for smaller plants as illustrated by the comparison of the Ford Canadian factory with the American plant.

These are two methods—original and eminently successful—of utilizing "Sirocco" equipment. They may or may not fit your

C H E C K   T H E   C H E C K S   A N D   P O S T   T H E   P O S T A L

building. If they do not, we can co-operate with your architect or engineer in designing one which will meet your particular requirements—which will heat, cool and ventilate your plant successfully and economically. May we have that opportunity?

If you are interested sign and return the enclosed card today and we will gladly give you complete information concerning the "Sirocco" plan with its many blade fan.

**AMERICAN BLOWER COMPANY**  
DETROIT

*Many new and interesting developments have taken place in "Sirocco" Apparatus. We believe you should know of these things and the reason for them. If you will check the checks as suggested and drop the card in the post box, we will gladly renew your reference file on the subjects in question.*

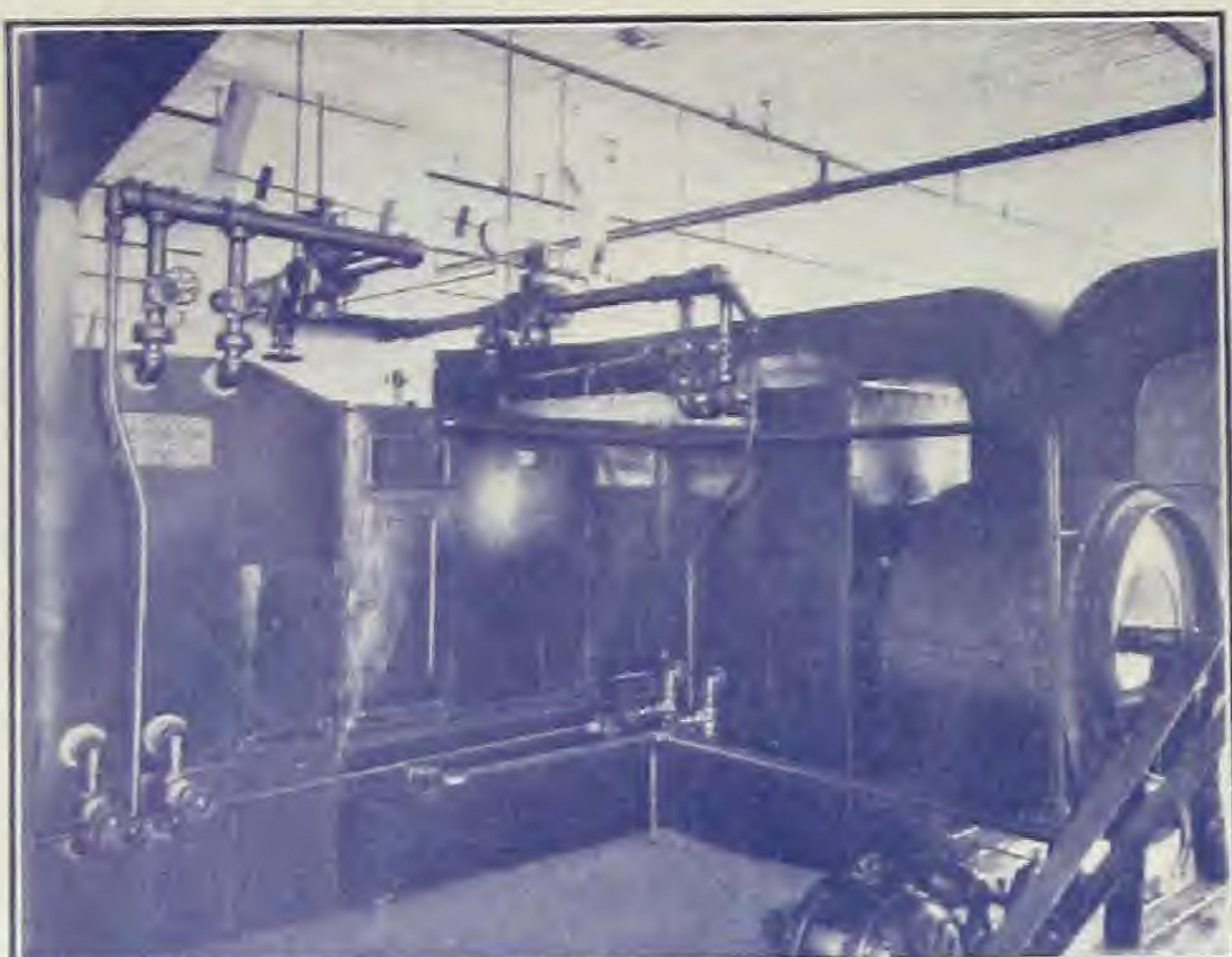


Fig. 1



Fig. 6



Fig. 8



Fig. 2



Fig. 3

## American Blower Co. Products

Fig. 1—"Sirocco" System of Office Building Heating, Ventilating, Purifying and Cooling.

Fig. 2—Type "E" Exhaust Fan for Exhausting and Conveying Systems.

Fig. 3—"Sirocco" Electric Utility Blower, built in three sizes, for ordinary lamp socket attachment.

Fig. 4—Type "P" Special Steel Pressure Blower for supplying blast to cupolas and furnaces.

Fig. 5—"Sirocco" System of Heating, Ventilating, Cooling and Drying, installed in Factory Building.

Fig. 6—"Sirocco" Multi-Blade Patented Fan Wheel.

Fig. 7—Detroit Tilting Steam Trap built in Return-Separating-Vacuum and Condensing Types. Used for automatically returning condensation from steam lines directly to boiler without pumping.

Fig. 8—"Sirocco" System of Heating and Ventilating for Public Buildings.

Fig. 9—Type "V" Universal Blower and Exhauster. Entirely reversible as to angle of air discharge with either right or left hand drive. Built for motor or pulley drive.

Fig. 10—"Ventura" Disc Ventilating Fans for handling large volumes of air at low power costs.

Fig. 11—"ABC" Vertical Enclosed Self-Oiling Steam Engine, a very high speed, high efficiency engine, especially adaptable for direct connection to Fans, Centrifugal Pumps, Stokers, Generators, etc.

Fig. 12—"Sirocco" Mechanical Draft Fans supplying draft to two of the largest boilers in the world—2,365 H. P. each.



Fig. 9



Fig. 10

## AMERICAN BLOWER COMPANY

General Offices—Detroit, Mich. Works—Detroit, Mich., Troy, N. Y., U. S. A.  
Canadian Sirocco Co., Limited, Windsor, Ontario

### SALES OFFICES:

New York, 141 Broadway  
Boston, 120 Milk Street  
Rochester, N. Y., Insurance  
Building  
Philadelphia, Hale Building  
Pittsburg, Empire Building  
Chicago, Marquette Building  
Indianapolis, Merchants National  
Bank Building  
Kansas City, Mo., 1215 R. A.  
Long Building

St. Louis, Title Guaranty Building  
Dallas, 1908 Commerce Street  
Atlanta, Empire Building  
Minneapolis, Plymouth Building  
San Francisco, 667 Mission St.  
Los Angeles, Central Building  
Seattle, Central Building  
Montreal, Que., 301 McGill  
Building  
Toronto, Ont., 43 Victoria Street



Fig. 4

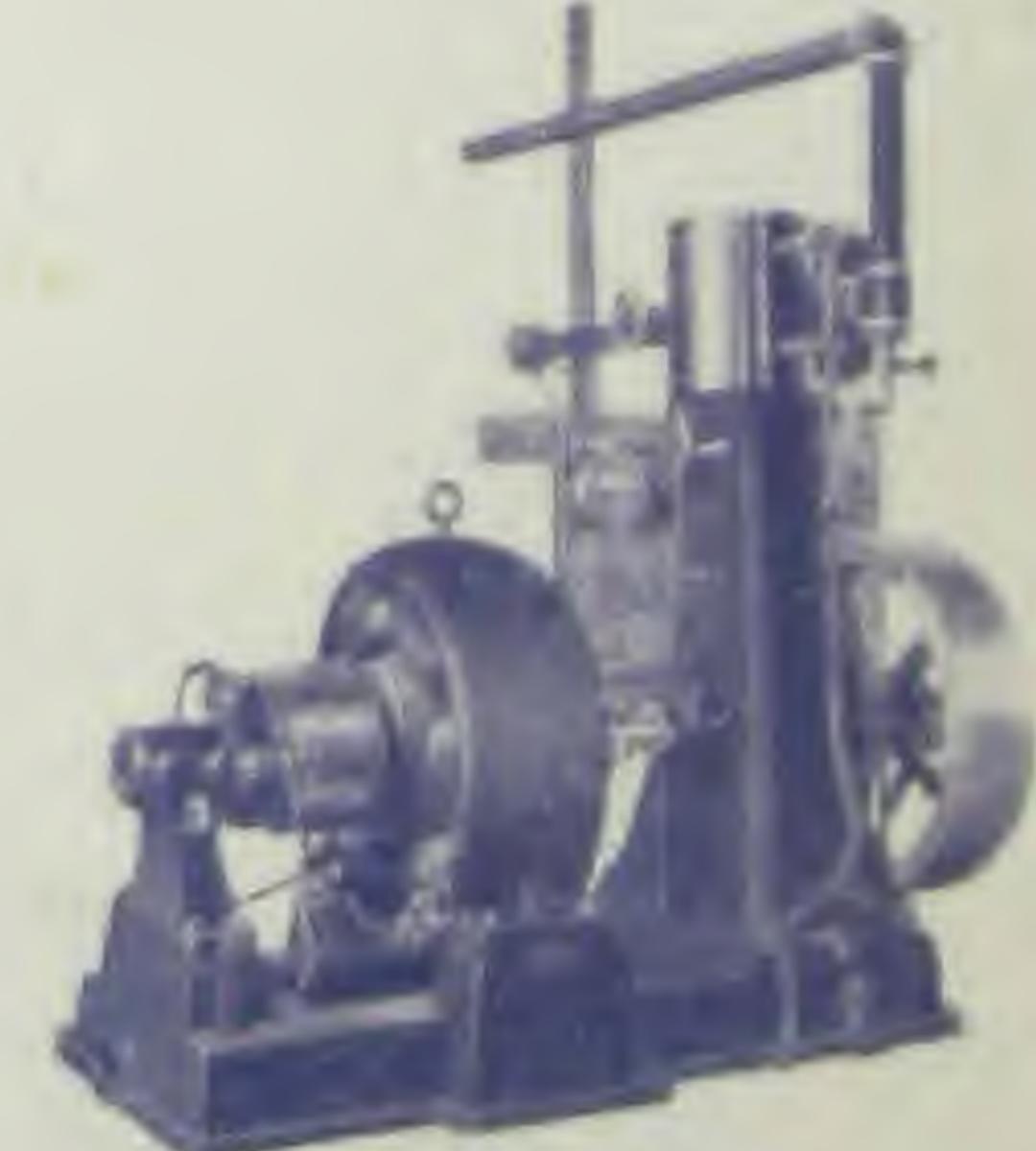


Fig. 11

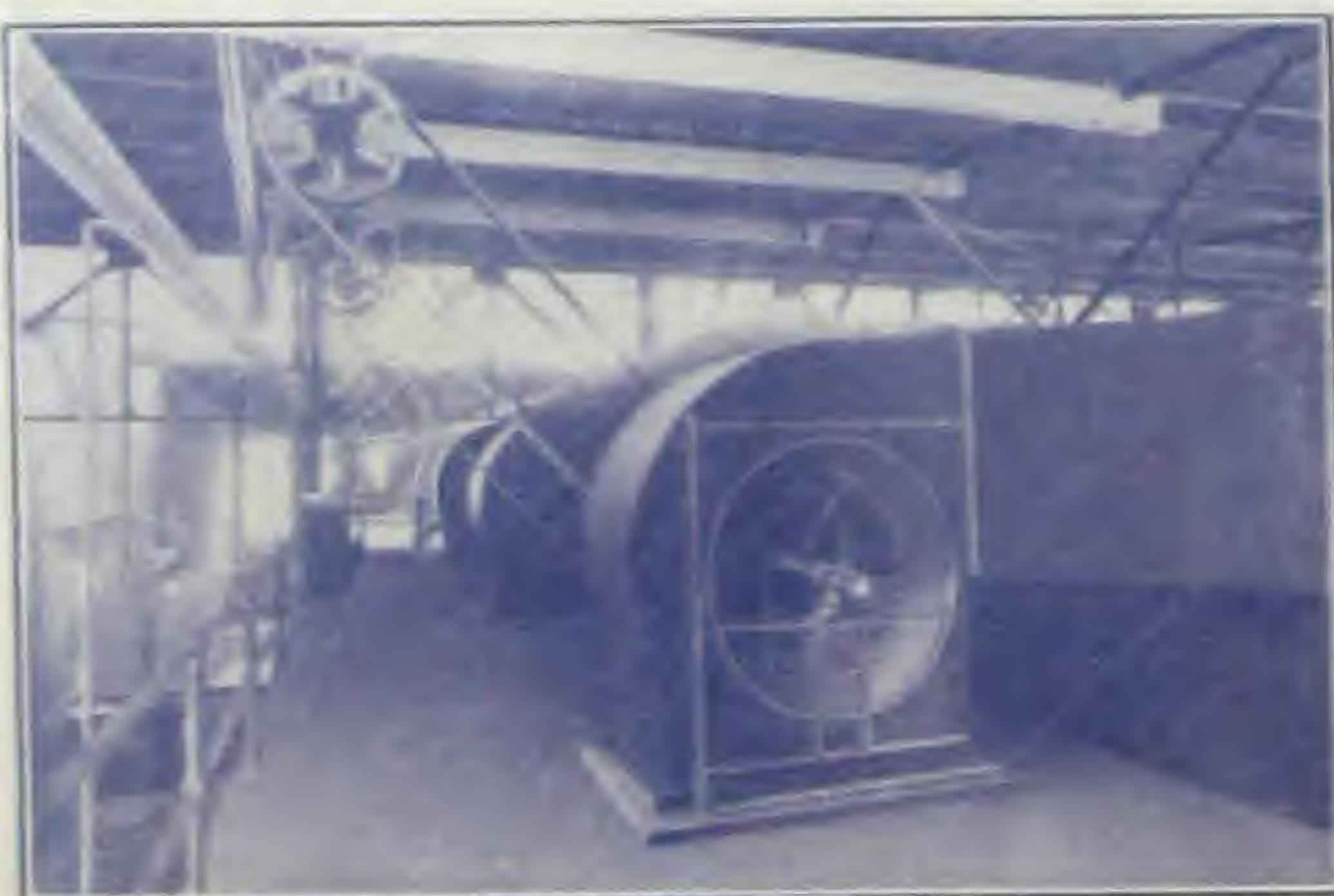


Fig. 5



Fig. 7



Fig. 12